

# Respirable Silica

## What Have We Learned?

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# Objectives

- Major Requirements of the Silica Standard.
- Common Silica Hazards Found in Region 7.
- Areas Where Silica Control Programs are Found Lacking.

# EXTENDED STANDARD REQUIREMENTS

- Scope
- Definitions
- Permissible Exposure Limit
- Exposure Assessment
- Regulated Areas (Less in Const.)
- Methods of Compliance
- Medical Surveillance



# EXTENDED STANDARDS CONTINUED

- Communication
- Training
- Record Keeping
- Appendixes
  - Methods Sample Analysis
  - Medical Surveillance
  - (separate 1910.134 requirements)



# SCOPE

Construction

General Industry

Action Level Initiated

8 hr. TWA 25 ug/m<sup>3</sup> or 0.025mg/m<sup>3</sup>



# Major Requirements

- Construction Industry
  - Data
  - Monitoring
  - Table 1
- General Industry
  - Data
  - Monitoring



# Silica: OSHA 5 Min. Video:

- <https://www.youtube.com/watch?v=-kQmLYqIR2A&feature=youtu.be>



# MONITORING ISSUES

- No initial monitoring when required
- LOW PEL 50 ug/m<sup>3</sup>
- Less than results exceed action level
- <26 ug/m<sup>3</sup>
- 400 liters air required
- MSA Cyclone 1.7
- Higher Flow Cyclones are available





# Table 1 Silica Const.

- OSHA Request for Comments
- October 14, 2019
- Effectiveness Engineering Controls in table 1
- Tasks equipment not listed on table 1
- Uses for General Industry



# Cyclone Used



# Common Silica Hazards – Region 7

- Construction

Rank	Standard Cited	Times Cited	Description
1	1926.1153(c)(1)	236	Table 1 – Control Measures
2	1926.1153(d)(2)(i)	228	Exposure Assessment
3	1926.1153(g)(1)	161	Written Exp. Control Plan
4	1926.1153(i)(1)	79	Haz Com of Resp. Cryst. Silica
5	1926.1153(i)(2)(i)	43	EE Info & Training

# Common Silica Hazards – Region 7 Cont.

- Construction

Rank	Standard Cited	Times Cited	Description
6	1926.1153(g)(4)	26	Competent Person
7	1926.1153(e)(2)	22	Resp. Protection Program
8	1926.1153(d)(1)	20	PEL – 50 ug/m <sup>3</sup> 8-hr TWA
9	1926.1153(i)(2)(i)(A)	17	EE Info & Training – Health Haz
10	1926.1153(f)(1)	14	Housekeeping (Wet or HEPA)



# Common Silica Hazards – Region 7

- General Industry

Rank	Standard Cited	Times Cited	Description
1	1910.1053(d)(1)	37	Exposure Assessment
2	1910.1053(f)(2)(i)	26	ECP
3	1910.1053(c)	22	PEL – 50 ug/m <sup>3</sup> 8-hr TWA
4	1910.1053(f)(1)	20	Eng. & Work Pract. Controls
5	1910.1053(j)(1)	18	Haz Com of Resp. Cryst. <b>Silica</b>

# Common Silica Hazards – Region 7 Cont.

- General Industry

Rank	Standard Cited	Times Cited	Description
6	1910.1053(i)(1)(i)	16	Medical Surveillance
7	1910.1053(e)(1)	15	Regulated Areas
8	1910.1053(j)(3)(i)	13	EE Info & Training
9	1910.1053(d)(3)(i)	11	Monitoring
10	1910.1053(j)(2)	11	Signs in Regulated Areas

# Construction

## 1 Table 1 Control Measures

- 1926.1153( c )(1)
- Many employers not aware of Standard or Table 1
- Table 1 control measures not implemented properly
- Example hosed water not acceptable
- Controls not used



# Construction

## 2 Exposure Assessment

- 1926.1153(d)(2)(i)
- Have not performed initial monitoring or other assessment





# Construction

## 3 Written Exp Control Plan

- Describe tasks, engineering controls, housekeeping

# Construction

## 4 Haz Com of Resp Silica

- 1926.1153(i)(1)
- Labeling
- Hazards Addressed
  - Cancer
  - Lung Effects
  - Kidney Effects
  - Immune System Effects



# Construction

## 5 EE info and Training

- 1926.1153(i)(2)(i)
- knowledge and understanding of
  - (A) The health hazards;
  - (B) Specific tasks with exposure to respirable crystalline silica;
  - (C) Specific measures, work practices, and respirators to be used;
  - (D) The contents of this section;



# Construction

## 6 Competent Person

- 1926.1153(g)(4)
- Not trained or not doing job
- Training not specified
- Power to immediately shut down job



# Construction 7 Respiratory Protection

- 1926.1153(e)(2)
- Institute Respiratory Protection Program
- Per 1910.134



# Construction 8 PEL

- 1926.1153(d)(1)
- 50 ug/m<sup>3</sup> 8 hr. TWA
- Previous
  - 1926.55 Mineral Dust table
  - 10 mg/m<sup>3</sup>/1%SiO<sub>2</sub>+2



# Construction

## 9 EE Info and Training

- 1926.1153(i)(2)(i)(A)
- Specific Training not given-Health Hazards



# 10 Housekeeping (Wet or HEPA)

- 19261153(f)(1)
- 1910.1053(h)(1)
- Dry sweeping usually issue



# **General Industry**

## **1 Exposure Assessment**

- **1910.1053(d)(1)**
- **Assess those reasonably expected to be exposed above Action Level**
- **25 ug/m<sup>3</sup> 8 hr. TWA**



# General Industry

## 2 ECP

- 1910.1053(f)(2)(i)
- Use Engineering or other Controls
- Unless Demonstrate not Feasible



# General Industry

## 3 PEL

- 1910.1053(c)
- Previous
  - 1910.1000 Mineral Dust table
  - 10 mg/m<sup>3</sup>/1%SiO<sub>2</sub>+2



# General Industry

## 4 Eng. & Work Pract. Controls

- 1910.1053(f)(1)



# General Industry

## 5 Haz Com of Resp

- 1910.1053(j)(1)
- Use 1910.1200
- Labels
- Training IAQ 1910.1200



# **General Industry**

## **6 Medical Surveillance**

- **1910.1053(i)(1)(i)**
- **No Cost**
- **Reasonable time and place**
- **> AL 30 or more days per year**



# General Industry

## 7 Regulated Areas

- **1910.1053(e)(1)**
- **In Excess PEL**



# **General Industry**

## **8 EE Info & Training**

- **1910.1053(j)(3)(i)**
- **Health Hazards**
- **Specific Tasks**
- **Specific Measures for Protection**
- **Contents Section**
- **Medical Surveillance Program**





# General Industry

## 9 Monitoring

- **1910.1053(d)(3)(i)**
- **Initial**
- **Representative fraction**
- **Each Shift/Job**
- **Sample Expected Highest Exposures**



# General Industry

## 10 Signs in Regulated Areas

- **1910.1053(j)(2)**
- **RESPIRABLE CRYSTALLINE SILICA**
- **MAY CAUSE CANCER**
- **CAUSES DAMAGE TO LUNGS**
- **WEAR RESPIRATORY PROTECTION IN THIS AREA**
- **AUTHORIZED PERSONNEL ONLY**



# RESOURCES

- [www.osha.gov/silica](http://www.osha.gov/silica)
- <https://www.osha.gov/dsg/topics/silicacrystalline/>



# Demonstration

- **OSHA Silica Site**
- **Or**
- **Slides 21-28**



# OCCUPATIONAL EXPOSURE TO RESPIRABLE CRYSTALLINE SILICA

- Health Effects
- Construction
- General Industry and Maritime
- Sampling and Analysis
- FAQ's



# HEALTH EFFECTS

- Films Available
- Silicosis: 15-20 years
- Lung Cancer: increased risk
- Chronic Obstructive Pulmonary Disease
- Kidney Disease

# CONSTRUCTION

- Comply with Construction Standard
- Construction Resources
- Outreach Materials



# CONSTRUCTION CONT. COMPETENT PERSON

- Does not specify training
- Defines in terms of capability
  - Knowledge
  - Authority, prompt action





# CONSTRUCTION CONT. CONTROLLING DUST

- Fact Sheets
- Videos, move to website
- Copy of Standard
- Directive
- Interpretations



# GENERAL INDUSTRY

## 1910.1053

- SUMMARIZES REQUIREMENTS
- OUTREACH MATERIALS
- INTERPRETATIONS
- DIRECTIVES



# SAMPLING AND ANALYSIS

- OSHA Technical Manual



# FAQs

- Advisory in nature and informational
- Comply with safety and health standards and regulations
- Answers common questions



# Films

- 1938 “Stop Silicosis Video
- Historical Summary
- 2016 “ Stop Silicosis Video
- Brings Recent History



# Questions

# Presenter Information

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